THE

JOURNAL OF GAS LIGHTING.

PUBLISHED QUARTERLY,

WITH AN INTERMEDIATE SUPPLEMENT ON THE 10TH OF EACH INTERVENING MONTH.

No. 4.] LONDON, MAY 10, 1849. [SUPPLEMENT, PRICE 3d.

JOHN BARLOW,
(SUCCESSOR TO BARLOW AND CO.),
Wenlock Ironworks, Wharf-road, City-road, London
(Late of No. 32, Bucklersbury),
Engineer and Contractor for GAS APPARATUS, Manufacturer of Gasholders, Purifiers, Valves, Governors, Roofs, &c., on the most improved constructions.

Contracts taken for Iron or Clay Retorts, Tanks, Pipe-laying, and for Gas Work erected complete.

Designs, Specifications, and Estimates made.

To be Disposed of, a New Cast-iron Gasholder Tank, 43 feet 6 inches diameter, and 16 feet 6 inches deep, weighing about 68 tons. It can immediately be shipped at Hull for any part of the United Kingdom or the Continent.

CONDENSER for Sale, at the Bristol and Clifton Gas Works, Limekiln-lane, Bristol, consisting of a box, 18 ft. 8 in. long, with divisions, and 32 vertical pipes, 9 ft. long, and 7 in. diameter, connected together at the top by half-circle bends. It is capable of condensing from 5000 to 6000 cubic feet of gas per hour; and the total weight, including the screw-bolts and nuts, is upwards of five tons.

For further particulars apply at the Gas Works; or to Mr. Barlow, Civil Engineer, 32, Bucklersbury, London.

FOR Sale, Dip Pipes, 3 in. diameter.
H Pipes, 3 in. diameter.
7 in. Slide Valves.
Solid Columns, 7½ feet long, 4 in. diameter.
Hollow Columns, 8½ ft. long, 4½ in. diameter.
Iron Door Frames, 4 ft. 9 in. by 6 ft. 9 in. in the clear.
Small Garden Posts, 3 ft. high, 3 in. diameter.
Two old Purifiers, 6 ft. 6 in. by 9 ft. and 2 ft. deep.
Old Castings, 12½ ft. high, for the support of a roof.
Apply at the SOUTH METROPOLITAN GAS WORKS, Old Kent-road, London.

M. KELLY, Cast Iron Wharf, 31, Bankside, London. — Retorts of superior quality, Socket and Flange Pipes, Bends, Branches, Syphons, and every description of Castings for Gas and Water Works, Gasometers, Tanks, Purifiers, Condensers, &c., erected complete, or the materials supplied.

Gas Valves and Sluice Cocks on an improved principle. Patent Gas Tubing and Connections.

A stock of the above articles kept.

The Pipes and Retorts supplied by M. K. are cast vertically, which ensures soundness and equality of thickness throughout.

TO Gas Companies, Water Companies, and Others.—TO BE DISPOSED OF, about NINETY 24-Inch MAIN PIPES, at — per ton.

Application for particulars as to price, &c., to be made to the Storekeeper at the Chartered Gas Light and Coke Company's Works, Horseferry-road, Westminster.—February, 1849.

CAST Iron Retorts, Socket Pipes, and Connections of every size suitable for Gas and Water Works, Lamp Columns, Wrought Iron Tubing, Hot Water Pipes, Rain Water Pipes, and Eaves Gutters, in stock, and sold on the lowest terms, at LYNCH WHITE'S Iron Wharf, 66, Bankside, London.

TO Gas Companies. — The following GAS APPARATUS to be DISPOSED OF by the CARLISLE GAS COMPANY, and will be treated for on liberal terms, viz.:—
1 Cast-iron Gasholder Tank, 27 feet diameter by 18 feet deep.
1 Gasholder 26 feet diameter and 17 feet deep, to fit the above tank.
1 Gasholder 30 feet diameter by 12½ feet deep.
8 Dry Lime Purifiers, each passing the gas through two layers of lime.

Application to be made at the Company's Works, Carlisle. JOHN CROSTHWAITE,
May 3, 1849. Manager.

CAST IRON PIPES, &c.

TO Gas Companies.—J. Jones, Iron- bridge Wharf, No. 6, Bankside, London, keeps a large Stock of Gas Mains, with Bends, Branches, Syphons, Tees, Collars, Caps, Reducing Pipes, &c.

Octagon Lamp Posts and Irons, Flange and Hot-water Pipes, with all the usual connections; also Rain-water Pipes, Half-round and O. G. Gutters, Barrow and Navy Wheels.

Cast and Wrought Ironwork for Stable Fittings, viz., Mangers, Hay-racks, Ramps, Cills, Posts, Stable-traps, Gratings, Street Gutters, &c. &c.

The above, as well as numerous other Castings, at very low prices, at JONES'S, Iron-bridge Wharf, No. 6, Bankside, Southwark, London.

THOMAS ALLAN and CO., SPRING-BANK IRONWORKS, GLASGOW, have always on hand a large assortment of GAS PIPES and other Castings connected with Gas Works, which they beg to solicit orders for.

R. LAIDLAW AND SON, GAS ENGINEERS,
BRASS AND IRON FOUNDERS AND MANUFACTURERS OF GAS METERS, MALLEABLE IRON AND BLOCK-TIN TUBES, GAS LAMPS, PENDANTS, BRACKETS, AND FITTINGS, RETORTS, PIPES, and all APPARATUS required for GAS WORKS, of the best quality.
ORDERS promptly executed, and ESTIMATES given.
EDINBURGH AND GLASGOW.

MESSRS. JOHN RUSSELL and CO., 69, Upper Thames-street, London, and Wednesbury, Manufacturers of Patent Wrought Iron Tubes for Gas, &c., continue to make the same uniform article in weight, &c., as before the expiration of the patent. Every Tube is subjected to Hydraulic Test before sent out.

Also Manufacturers of Lap-welded Tubes for Locomotive and Marine Boilers, and Sheet Iron of every description.

TO DIRECTORS AND MANAGERS OF GAS COMPANIES.

GLOBE Patent Tube Works, Wednes- bury.—Gentlemen,—We beg to solicit your orders for Iron Gas Tubes and Connections.

Mr. CORNELIUS WHITEHOUSE, the Original Patentee of the Tubes manufactured for so many years by Mr. JAMES RUSSELL, of Wednesbury (and to whom the Patent was disposed), having made further Improvements, which are patented, is thereby enabled to manufacture Tubes of a superior quality to any hitherto offered to the public.

In soliciting your favours we beg to assure you that the most prompt attention shall be given to orders entrusted to our care.—We are, gentlemen, your obedient servants, C. WHITEHOUSE and CO.

TO Manufacturers of Ammoniacal Salts.—The Committee for managing the affairs of the BRISTOL GAS LIGHT COMPANY are ready to enter into a Contract, for a Term, for the SALE of from 16,000 to 20,000 gallons of AMMONIACAL LIQUOR, produced per month at the Works of the Company, from the 30th of June next.

Further particulars may be known at the Company's Offices, where Tenders are to be left on or before Monday, the 28th instant.

Land can be had adjoining the Company's premises, if required, where the manufacture may be carried on.

EMANUEL WAIT, Clerk to the Company.
Avon-street, St. Philip's, Bristol, May, 1849.

TO Manufacturers of Sulphate of Ammonia and Others.—The DERBY GAS LIGHT COMPANY, having the Ammoniacal Liquor and Tar produced at their Works for DISPOSAL, are desirous of treating with a party wanting to purchase the same.—Particulars may be learnt on application at their Office, Gas Works, Derby.

TO Architects and Civil Engineers.— A Young Man, a Student of King's College, is desirous of meeting with EMPLOYMENT in either of the above professions (the former preferred), either at home or abroad. A trifling salary would be accepted, as respectable employment only is wanted.

Address B. H. C., Mr. Syrett's, 72, Old Broad-street, City.

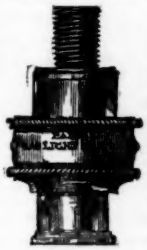
TO Capitalists.—The Advertiser, who is thoroughly qualified in Gas Engineering, the Manufacture of Gas Meters, and every description of Gas Apparatus, requires ASSISTANCE in the above Business, to enable him to complete his recent Improvements, &c.

Address, post-paid, to Mr. Upton, 32, Henrietta-street, Covent-garden; when, on a personal interview, satisfactory references can be given, and the amount of profits clearly shown.

IT is a Glaring Fact that Guise's New Brilliant GAS BURNER, which is perfectly shadowless, gives a purer and greater light, with less gas, than any other; and his original Shadowless Gas Burners, which are in such general use, are well known to be the most economical burners yet invented.

J. G. cautions the public against fraudulent imitations, as all his Burners are marked "Guise Patent."

Guise's Catoptric Reflectors are superior to anything of the kind yet invented for brilliancy and power of reflection. One trial will prove these facts. They are to be had of all respectable Gas-fitters, and at the Manufactory, 75, Margaret-street, Wilmington-square, London.



THE New Patent GAS LIGHT MONITOR, adapted to every description of Burner, and supplied at a cost placing it within the reach of every consumer of Gas, regulates the flame to any required height, economizing the consumption, and preventing the danger and inconvenience arising from the flaring and smoking of lights. It may be seen in daily use at the office of the Patentees, 20, King William-street, Charing-cross.

GAS 4s. 6d. per Thousand Feet.— The use of the Gas Light Monitor brings the actual cost of gas down to this price. The Monitor is applicable to every description of burner, its cost is little more than nominal, it may be fixed in a few minutes, regulates the flame to one standard, prevents the possibility of waste, and obviates all risk of accident. The Monitor is manufactured and sold, wholesale and retail, by the Licencees, JAMES JONES and CO., Gas Engineers, &c., 28, Bow-street, Covent-garden, opposite the Theatre, who, to encourage the more general introduction of gas into private as well as business houses, have made such reductions in the prices of every description of fittings, including chandeliers and burners of all kinds, as must remove altogether the long-existing objection of expense.

GAS, in which a great saving is to be effected by the use of the NEW PATENT GAS MONITOR.—STEVENS and SON, having made arrangements with the Patentees of the above very useful article, are manufacturing the same, and are prepared to supply the Trade wholesale, or Consumers, with any quantity they may require, and will send experienced workmen to fit the Monitor to any light where it is desirable to ensure a steady flame, rendered impossible to flare or smoke with any variation of pressure, and effecting an important reduction in the quantity of gas consumed, for which see Testimonials. Stevens and Son, Gas Engineers and Fitters, Darlington Works, 19, Southwark-bridge-road.

BY Her Majesty's Royal Letters Patent. — The UNIVERSAL PILOT GAS BURNERS, giving the purest and most powerful light of any burners ever yet submitted to the public, may be seen buring daily from nine to eight. They are constructed in strict accordance with the laws of pneumatics, thereby ensuring a perfect combustion of the most minute gaseous particles, without smoke, smut, or smell. The public may rest assured that all imitations of this Burner are utterly worthless.

TESTIMONIALS.

"The principle on which this Burner is constructed is truly scientific, and we doubt not it will meet with that demand to which its economy and advantages so justly entitle it."—*Mining Journal.*

"*Polytechnic Chemical School.*—In testing the Universal Pilot Gas Burner with one of the best shadowless burners, it gave a more pure and brilliant light, with a saving of from 20 to 25 per cent." Signed, GEORGE CRISP, Engineer.—August, 1846. The following low scale has been adopted:—

The Pilot, as used at Hartlepool Lighthouse, with glass complete	10s. 6d.
Next size, a very powerful light	6s. 6d.
Smaller size, perfectly shadowless, sufficient to light a good-sized room	5s. 0d.

☞ Patent Achromatic Blue Lamp or Gas Glasses, for preservation of sight. Pure Camphine Spirit, at 4s. 6d. per Gallon.

C. KNIGHT, Gas Fitter, 74, St. Martin's-lane, Charing-cross.—A liberal Discount to the Trade.

GAS.—A Saving of from 35 to 80 per cent. is effected by the use of the PATENT BOCCIUS and SUN GAS BURNERS. They are so constructed as not to corrode or stop up, and the ligth they give is decidedly matchless. In operation daily at the only City Agents', Dean, Dray, and Dean, 3, Arthur-street East, London-bridge.

Gas Fitting executed in the most perfect manner, and according to estimates calculated with the greatest precision.

THE Economic Gas-cooking Stove.— With this Registered Patent Apparatus, COOKING by GAS is performed with little trouble, cleanliness, and economy; and, if necessary, where there is no chimney. Those who have not seen how much heat can be obtained from a few jets of Gas, scientifically applied for Chemical, Manufacturing, or Culinary Purposes, are invited to inspect the different kinds of Apparatus at C. RICKET'S Manufactory, 7, Arundel-street, Strand, opposite Charing-cross Hospital.

REVOLUTION in Light.—Public NOTICE.—What Lights are these? Lights that would have made the ancients gaze—living men admire.—The Diamond Lamp gives every satisfaction; its superior will never come.—The Vertical Lamp is shadowless, and simple to perfection.—The Pearl Candle Lamp is worth a hundred other candle lamps. To sell the ordinary candle lamp is now impossible: the public have long enough been pestered with such rubbish.—The Star, the Golden, the Glass, the Ring, and the Reflecting Gas Burners are beyond comparison the most brilliant of Gas Lights. The Metropolitan Light Company her Majesty's dominions with light supply. The public will have none other. The Eight New Lights are constantly burning at the Company's Establishment, RICHARD CLARK, Resident Manager, 447, West Strand, next door to the Electric Telegraph Company.

M. SHEEN, Gas and Railway Lantern Maker, 90½, Holborn-hill, begs to inform Managers of Gas Works, &c., that she continues to contract and supply Lanterns on reasonable terms, and keep them in repair by the year.

HARPERS and MOORE, of the Delph Fire-brick and Clay Works, Stourbridge, invite the attention of Gas Companies, Engineers, Oven Builders, and all consumers, to their Stock of FIRE-BRICKS, LUMPS, or BURRS, QUAREIES, CLAY, and other Goods, a large assortment of which is always kept at their London Depôt, No. 7, Wenlock-road, City-road; also Melting-pots for Brassfounders and Metal Refiners. These articles are made in a very superior manner from clay of the very best quality, and have been proved by metal-melters (who can be referred to) to have withstood the most severe tests, and for very long periods.

Shipping orders supplied, and every description of Fire-clay Goods made to pattern or drawings on the shortest notice.

H. and M. particularly invite the attention of Gas Companies to a trial of their Fire-clay Retorts, which they are now making in a very superior manner, and of a quality which, on trial, will be found to surpass anything of the kind hitherto produced. The superior quality and peculiar admixture of their clays enable them to manufacture an article which fully admits of the necessary expansion and contraction, to allow of their being let down at the end of a season, when the usual supply of gas is not required, and again put to work for successive seasons without fear of cracking or leakage from any other cause.

H. and M. further beg to direct attention to the evidence of Mr. Croll, given before a Committee of the House of Commons, relative to the use of Clay Retorts (see "Gas-lighting Journal" of April 10, 1849, pages 43 and 44). The Clay Retorts there referred to by Mr. Croll were made at, and supplied from, the works of Harpers and Moore, as above; they were put to work in August, 1846, and are now in full and constant operation, as will be seen by the following testimonial, furnished by the present Manager of the works:—

"Tottenham and Edmonton Gas Works, Willoughby-lane, Marsh-lane, Tottenham, March 1, 1849.

"Sir,—In reply to your inquiries respecting the duration of the Clay Retorts, supplied to these works by your firm, I have much pleasure in stating that ten of them have been in constant use since the middle of August, 1846, and that they are still in full operation; and I have no hesitation in saying that they will last for two or three winters to come. I may mention that we have had one of the above replaced in consequence of an accident which happened to one of the furnaces, which caused it to be disturbed, otherwise it would have stood as long as the others. They are set according to Croll's Patent.

"I am, sir, yours obediently,
"J. W. DUKE, Secretary.

"To Mr. S. Partridge, Agents to Messrs. Harpers and Moore, 7, Wenlock-road, City-road, London."

P.S. Other testimonials can be seen, and further information obtained, on application (if by letter, prepaid), addressed to Mr. S. Partridge, as above.

TO GAS COMPANIES.

JOHN EUNSON, Gas Engineer and Contractor for the Erection of Gas Works, continues to manufacture CLAY RETORTS upon the most approved principle, and of the best material.
Wolverhampton, May 5, 1849.

PATENT FIRE-CLAY RETORTS.

ORLANDO BROTHERS and RAILTON, Manufacturers of O. Brothers's Patent, beg to state that these RETORTS being made in ONE ENTIRE OPERATION, and in ONE PIECE of any required shape, length, breadth, and height, are not liable to Cracks and Fissures, of which there is a just and general complaint; and they are consequently superior to and cheaper than any hitherto manufactured.

References and further particulars may be obtained on application to the Patentee, Gas Works, Blackburn; or to Messrs. George Barlow and Son, 9, Charterhouse-square, London.

Prices at Blackburn, all D shaped:—

12 by 12, at 7s.	per foot in length.	
14 by 12, at 8s.	,,	,,
16 by 12, at 8s. 6d.	,,	,,
18 by 15, at 9s. 6d.	,,	,,
24 by 15, at 11s. 6d.	,,	,,

exclusive of the angle-iron flanges.

PATENT FIRE-CLAY RETORTS.

MESSRS. GEORGE BARLOW and SON have the satisfaction to announce that they have been appointed the AGENTS of Messrs. ORLANDO BROTHERS and RAILTON, for the Sale in London and the adjoining counties of Mr. Brothers's improved and most valuable RETORTS, the prices, &c., of which will be found in the advertisement above.

Iron Retorts, Main Pipes, Tanks, Gasometers, Condensers, Washers, Purifiers, Valves, &c. &c., supplied as usual. Also such as have become insufficient for an increased demand for gas, sold or exchanged on commission.—9, Charter-house-square, London.

FIRE BRICKS.

JAMES NEWTON, late J. Newton and Son, Falcon Dock, Bankside, London, Depôt for Stourbridge and Newcastle Fire Bricks, Lumps, Tiles, Fire Clay, and Clay Retorts, &c., for Gas Works. Goods made to pattern on the shortest notice.

BRETTELL and WHITEHOUSE, late Brettell and Rufford, beg to inform Gas Companies and others requiring best STOURBRIDGE BRICKS and CLAY that they continue making all kinds of BRICKS, and warrant all their goods fully equal to any house in the trade.
Fire Brick Works, Stourbridge.

FIRE Clay Gas Retorts.—The sub-scribers have for many years been extensive manufacturers of FIRE CLAY RETORTS, and supply most of the works in the centre and east coast of Scotland. They will guarantee their Retorts to last from one to two years, and to give satisfaction. They are cheaper than iron, carbonize coal more quickly, and with less fuel. Their Retorts may be seen at work at Poplar Gas Works, London.

Price £2 to £3, according to size.

Fire Bricks and all other Fire Clay Articles furnished of best manufacture, and at moderate prices.

FRASER and SANDERSON.
Inverkeithing, March 6, 1849.

PATENT FLEXIBLE GAS TUBING.

JAMES LYNE HANCOCK'S Vulcanized Indiarubber Hose Pipes and Tubing. Manufactory (and Warehouse), Goswell-mews, Goswell-road, London.

Gas Companies, Engineers, Gas Fitters, and the Trade generally, are respectfully informed this Tubing is now manufactured to any size, from ¼ inch bore and upwards, in 100-feet lengths, and perfectly cylindrical, either with or without a spiral wire inside.

VULCANIZED GLAZED FLEXIBLE TUBING, from ¼ inch up to 1 inch diameter, made in 24-feet lengths; or, covered with silk or worsted, up to 100 feet.

VULCANIZED HOSE, for FIRE ENGINES, BREWERS' USE, and for standing great pressures (Rubber and Cloth combined), made to any length or size to fit the necessary screws, &c.

VULCANIZED INDIARUBBER AIR-TIGHT BAGS, made any size, for Gas Mains, with flexible tubes attached, and fitted with stopcocks complete.

CARTER'S Patent Safety Gas Valve or Main Cock.—Experience has demonstrated the superiority of this Invention as a substitute for the common Main Cock, which is so soon out of order, either becoming fixed or leaky, neither of which is likely to occur with these Valves. They have been several years in use in many of our largest establishments: in the Bank upwards of one thousand are fixed, where, as elsewhere, they are highly approved.

Many of the Gas Companies have adopted them for their Street Lamp Cocks, and thereby prevent the possibility of waste.

They are manufactured of all sizes, from 2-8 to 12 inches bore, and are cheaper than any other description of Cock now in use.

THOMAS LAMBERT and SON,
Patentees, corner of Short-street, New-cut, Lambeth; Manufacturers of Block Tin Tube, and every description of Gas, Steam, and Hydraulic Apparatus.

WILLIAM SUGG, Gas Engineer and Manufacturer of Patent Wet and Dry Gas Meters, combining all the latest acknowledged improvements; Brass Founder, Gas Fitter, and Lamp Contractor; Manufacturer of all kinds of Plain and Ornamental Gas Apparatus, and Contractor for the Erection of Gas Works. Designs and Estimates submitted; Station Meters and Governors of any size.

Gas Meter and Apparatus Works, 19 and 20, Marsham-street, Westminster.

A. WRIGHT, Gas Engineer and Meter Manufacturer, 55, Millbank-street, near the Houses of Parliament, Westminster, respectfully calls the attention of Gas Companies and Engineers who are not yet provided with Station Meters to the fact that he has erected two of the largest machines of this kind in existence, the one for the Chartered Gas Company, London, the other for the Hibernia Gas Company, Dublin, for both of which he has obtained the highest testimonials.

To this branch of business A. W. devotes much attention, as well as to the Manufacture of all kinds of Experimental Machinery for Gas purposes.

Consumers' Meters of all sizes at the usual prices, with a liberal discount to wholesale purchasers.

PATENT GAS METER MANUFACTORY,
No. 66, Snow-hill, London.

WILLIAM SMITH, by the improvements he has made in the Wet Meter, and which he has secured by her Majesty's Royal Letters Patent, the accuracy of their registry is rendered certain by the introduction of the adjusting slide and hydraulic, whereby a Perfect Water Level is readily obtained, and the Hydraulic precludes the possibility of abstracting water from the meter by increased pressure or otherwise, thus surmounting the great desideratum of the Wet Meter. In his Patent Equitable Gas Meter neatness and strength are combined, the backs and fronts of the case being stamped by powerful machinery out of thick plate iron (tinned or galvanized); and the internal construction is of the best metal, which will resist the action of any impurity in the gas.

Old Meters may readily have the adjusting slide and hydraulic applied, thereby having accurate measurement assured.

Station Meters, Governors, &c., made on the shortest notice.

HENRY JONES, Gas Meter Maker, 44, Old-street, St. Luke's, London, begs to inform Gas Companies and Gas Fitters that he is manufacturing Gas Meters of first-rate workmanship and material at 30 per cent. off the list of prices.

The above Meters are made with all the new improvements.

METER INDICES.

J. CLUER, Gas Meter, Index Maker, and Model Machinist, No. 4, Bowling-green-lane, Clerkenwell, London.

INDICES and all other Apparatus for Gas Meters of every size and kind, made on the shortest notice, of the best metal, and of superior workmanship.

Second Edition.—Ninth Thousand.

A LETTER to the Right Hon. the Earl of CARLISLE on the COST and SUPPLY of GAS in the METROPOLIS. By a CIVIL ENGINEER.

London: W. Strange, 21, Paternoster-row; and all booksellers in town and country. Price 1s.; by post, 1s. 4d.

JENNINGS'S

PATENT INDIARUBBER TUBE GASCOCKS.

The Patentee begs to inform all persons interested that the INDIARUBBER TUBE COCK has been found to answer most admirably for all Gas purposes. Great numbers have been used, and references can be given to some that have been in use for twelve months and upwards.

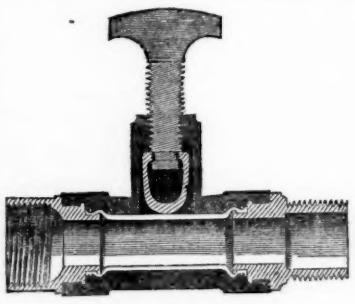


Fig. 1.

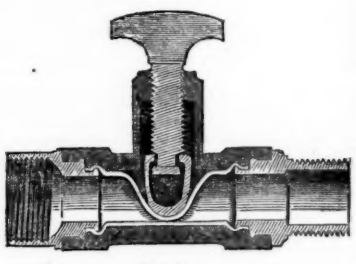


Fig. 2.

The simplicity of this Cock is worthy the attention of scientific men; when open it forms a straight and continuous pipe, free from all obstruction, as shown in fig. 1, and the passage of the gas is impeded, or altogether stopped, by pressing on the OUTSIDE of the tube, as shown in fig. 2. There can be NO ESCAPE laterally, as the working parts have no connection with the interior.

The advantages derived from its use are these: its being free from all friction—will not, like the Plug-cock, become set fast or unsound; it offers as free a passage as the pipe itself; the facility of repair (should it ever need it) is also worthy of attention, as the introduction of a fresh piece of vulcanized rubber Tube will, at any time, make it equal to new.

For Testimonials and Prices apply to the Inventor and Patentee,

GEORGE JENNINGS, 29, GREAT CHARLOTTE-STRET, BLACKFRIARS-ROAD, LONDON.

N. B. All kinds of Cocks for Water Purposes can be had in Iron, and they are warranted to stand any pressure, as the metal casing must *burst* before the Cock can become injured.

For drawing off Wine, Vinegar, Cider, or any Liquor containing Acid, this Cock is invaluable, as no Verdigris can be generated, as is the case with all other Cocks.

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TO CORRESPONDENTS.

Mr. O. B. (Blackburn).—*We have transmitted your letter to the proprietor of the late* Gas Gazette, *who has promised to refund your surplus subscription to that publication. We avail ourselves of this opportunity to state generally that no connection whatever exists between ourselves and our defunct predecessor.*

W. W. (Battle).—*You are at liberty to make, use, and sell, any apparatus you were in the habit of making and using before the improvements to which you allude were registered, without any danger of being stopped by the party who now claims the invention.*

Dublin.—*We have not received the paper you mention, and shall be obliged if you will forward us a copy.*

ERRATUM.

In our last number, at page 43, the reference to the woodcut was made in the wrong place: it should have been inserted where Mr. Croll produced the first drawing.

NOTICES.

☞ The press of matter compels us to omit our usual Share List and Price Current for the month.

All communications relative to the editing of the Journal of Gas Lighting, and orders for Advertisements, to be addressed to the Editor and Proprietor, Thomas G. Barlow, Civil Engineer, 32, Bucklersbury, London; and any persons who are desirous of receiving the publication regularly are requested to give orders to that effect to their Booksellers or News Agents; or to William Strange, 21, Paternoster-row, London.

The Terms of Subscription are :—

Six Shillings per Annum for the Quarterly Journal and Monthly Supplement.

Post-office orders to be made payable to William Strange.

Advertisements are inserted at the rate of 5s. per six lines of 54 words, and 6d. per line of nine words for all beyond, subject to

15	per cent.	discount for	3	insertions.
25	ditto	ditto	6	ditto.
33⅓	ditto	ditto	12	ditto.

The Editor will be particularly obliged by his friends forwarding to him Notices of all Meetings, Trials, or Appeals which it may be interesting to the Gas World to have reported.

Circular to Gas Companies.

Our readers will perceive, by our parliamentary intelligence, that the bill of the Great Central Consumers' Gas Company has been prematurely stopped by the Standing Orders Committee upon a point of form, or, rather, that its promoters are not prepared to carry it out in accordance with their own notices, which precluded them from expending any portion of the capital beyond the boundaries of the city of London or its liberties. We regret this termination of the contest, because it leaves the whole question in a very unsatisfactory position, opens the door to renewed agitation and expense, and has deprived the parties whose very existence was threatened, of an opportunity of being heard, and of proving (as we understand they were prepared to do) the fallacy of most of the positions assumed in the evidence upon which the promoters relied for the success of their project. Having ourselves watched the progress of this agitation in its various ramifications, and studied the question in all its bearings, our readers will justly expect from us some observations upon the present state of the gas movement, its origin, future prospects, and bearing upon the value of the property invested in this branch of industry. We had prepared an article on these subjects, but justice to our numerous correspondents, some of whose communications have been already delayed for two months, compels us to postpone it to a future number.

The question has been asked of us whether we agree with the opinion given by Mr. Hawkesley in his examination on the Nottingham case, and reported at page 32 of our last number, viz., that "the price of coal did not govern the cost of manufacturing gas; for, when the price of coal was high, the company were able to sell their coke at a better price too."

Though it may appear presumptuous in us to differ in opinion from an authority entitled to so much respect, yet we certainly must differ, if the principle here promulgated is intended to be laid down as a general and invariable axiom. It was, in fact, disproved in the same case by subsequent evidence, from which it appeared that at Coventry the same coal cost 16s. per ton delivered, which at Nottingham cost only 8s. 6d., and the coke sold at the same price in both localities. We apprehend, however, that Mr. Hawkesley intended to limit his evidence to Nottingham alone, when it was stated that the price of coal varied, as well as that of coke; and that any increase in the value of coal was compensated by an increase in the selling price of coke, which varied from 9s. to 14s. per ton, whilst the fluctuations in the price of coal did not exceed 1s. 6d. per ton. This explanation will account for what otherwise would appear absurd to any practical man.

We advise such of our readers as have not as yet examined the question of clay retorts to do so without delay. During the last two years their manufacture has made immense strides, and we have little doubt of their finally superseding iron ones to a great extent. We are preparing an article for our July number, in which the several methods of manufacturing and setting them will be fully explained, and the results given; and, in the meantime, we shall be happy to receive such information on the subject from our friends as they may be inclined to favour us with privately.

Parliamentary Intelligence.

GREAT CENTRAL GAS CONSUMERS' BILL.

April 23.—This company's petition for additional provisions, referred back by the select committee on the bill, came on for hearing before Mr. Smith, the chief examiner appointed by the House to inquire into all matters having reference to the standing orders.

Mr. Bryden appeared for the promoters, and Mr. Tyrrell and Mr. Hall for the memorialists against the measure.

From the petitions presented to the House, and which were laid before the examiner, on behalf of the directors and promoters of the Great Central Gas Consumers' Company, it appeared that Mr. Croll, the engineer, has based his estimates for the works proposed to be erected by him upon land lying beyond the limits prescribed by the bill, or contained in the *Gazette* notices in November, under the impression that, although the company were limited by the bill to supply gas within the city of London and liberties, yet that the gasworks might be constructed beyond such limits. Upon this the promoters applied to the committee for an adjournment, to allow time to petition for additional provisions, which was granted until the 16th May. The petitioners now represented that the establishment of gasworks within the city or liberties of London would be attended with great expense, by reason of the high price of land; objectionable on account of the extreme density of the population, and the difficulty there would be in complying with the provisions of the Metropolitan Building Act, which requires that business of an offensive nature shall be carried on in premises at a prescribed distance. In order to supply gas, and to prevent this objection, the promoters were restricted by the bill from the manufacture of gas within the city of London. The establishment of gasworks, moreover, in the City was highly objectionable on account of their offensive nature, affecting the health of the inhabitants, as well as depreciating the value of the surrounding property. To avoid all this, the promoters now petitioned for permission to extend the limits of their bill to parishes beyond the City, where land for the erection of gasworks might be obtained at a reasonable rate, and its manufacture carried on on a more extended scale, and free from the alleged objections. The petition for additional provision asked, on these grounds, for powers to enable the promoters of the bill to extend the proposed limits to six parishes and two hamlets without the City, namely, the parishes of Bromley, St. Leonard; St. Ann, Limehouse; St. Dunstan, Stepney; St. Paul, Shadwell; St. George, Middlesex; and St. Mary, Whitechapel; and to the hamlets of Mile-end New-town and Mile-end Old-town. This application was supported by petitions from consumers of gas within the City, who pray that the proposed additional provision may be granted, on the ground that the promoters do not desire to supply gas beyond the limits prescribed in the bill as it now stands, namely, "the city of London and liberties thereof," the additional provision for which they ask being merely that certain parishes should be considered within the limits of the act for the purpose of erecting works, laying mains, and pipes; and petitions in support of this have been signed by upwards of 4,649 gas consumers, connected with the first mercantile and manufacturing firms.

Mr. Hall, on the part of the opponents, contended that the standing orders had not been complied with; first, upon the ground that the notices published in the *Gazette* and newspapers, in November, setting forth the intention of the promoters to apply to Parliament,

did not state the object of the intended application, inasmuch as no mention was made therein that the limits of the intended act would extend to the six several parishes and hamlets as well as to the City and its liberties.

The learned EXAMINER, after consideration, declared that on this ground the standing orders had not been complied with.

Mr. HALL next urged that the standing orders had not been complied with on the ground that, by the petition for additional provision, it appeared that it was intended to apply for powers to purchase lands within these several parishes and hamlets, whereas, by the published notices, such power was strictly limited to certain works and property therein specified.

The EXAMINER declared that in this respect also the standing orders were not complied with.

Another objection, to the effect that notice of intention to purchase the required lands ought to be given, was raised, but upon this no decision was given, it being understood that by the standing orders no such notice is required.

The EXAMINER reported non-compliance to the select committee on standing orders, and at their next meeting it will be finally decided whether the promoters may be permitted to proceed further with their bill.

APRIL 27.—*Standing Orders Committee.*—The report of the chief examiner of private bills was taken into consideration. Mr. Bryden and Mr. D. W. Wire appeared on behalf of the promoters, and Mr. Tyrrell, with Mr. Hall, on behalf of the opponents. The committee, after some deliberation, decided that "*the standing orders were not complied with, and that they ought not to be suspended.*" The bill is, therefore, lost for the present session.

Correspondence.

PROFITS OF GAS COMPANIES.

SIR,—Your journal has given me an impression that some property which I have invested in a gaswork is not as valuable as I had hitherto conceived it to be; and a recent half-yearly report which has been published in a local paper has led me to fancy, that the figures discredit the report and the chairman's representation, that the purchaser of shares at the then price of £4 10s. would receive a return of nearly ten per cent. thereon.

The capital of the company is composed of 1900 £5 shares, all paid up in full, and there are sundry debts, making a total investment of £100,716.

The gross quantity of gas made during the half year was 27,246,830 cubic feet.

	£	s.	d.	£	s.	d.
The gas rental during the same period was				7772	11	11
And the residuary products realized	1466	3	2			
Of which there was in hand from the previous half year	263	19	4	1202	3	10
				8974	15	9
The expenditure was as follows:—						
Coals, including delivery	2902	15	4			
Lime	43	15	9			
Wages	532	13	6			
Charges	471	1	11			
Salaries and directors	858	9	1			
Rates and taxes	193	6	10			
	5002	2	5			
And there was allowed for wear and tear 7½ per cent. on the half-yearly rental	559	8	6			
Reserve fund for bad debts, &c.	372	19	0	5934	9	11
Leaving a profit on the half year of				3040	5	10

The chairman represented that this would give the shareholders 10 per cent. per annum on the market price of £4 10s. per share, I say it does not justify a greater dividend than 5 per cent. per annum.

Having got into a controversy on this point with a contemporary (both of us being interested in knowing correctly how the concern stands), you would greatly oblige us by giving in your next journal such explanatory remarks as will show how much working profit there really has been (for the half year) *fairly applicable to a dividend.*

I conceive the estimate and reserve for maintenance and upholding of the company's fixed and working property is totally inadequate, say 2 to 2½ per cent. at least, on the amount of the investment being requisite as a reserve either by the directors or the proprietors for *a restoration or liquidation of the outlay* upon property subject to casualties and deterioration such as gasworks, particularly the main and service pipes in ground, such as the greater part of our city is. I fancy your calculations amount to that sum, and I am told by a gas manager they are rather below his experience for twenty years.

As a subscriber to the Journal, though not scientific or sufficiently master of the gas question to judge for myself, I am considerably interested as a director, and therefore solicit your assistance in the matter. D.

April 21, 1849.

Note by the Editor.—We have thought it prudent to suppress the name of the place from whence our correspondent dates his letter, as there are so few towns in the United Kingdom where fifty-four million feet of gas are made in a year, and sold at a rate which leaves 5s. 8·11d. for each 1000 feet, that we have grave doubts whether the publication of the fact would improve the value of the property; of the soundness of which he already entertains some doubts.

From the figures he gives, it would appear that £3040. 5s. 10d. had been realized in six months, being at the rate of 6 per cent. per annum on the actual capital employed, and a fraction over 7 per cent. on the market value of the 19,000 shares. Taking into consideration, however, that a reduction in the price of gas must probably be made at an early period, we should not have advised a larger dividend than 5 per cent. per annum on the share capital of the company.

Our correspondent's letter furnishes us with the following facts as to the cost of gas per 1000 feet, and the capital engaged:—

										1s. 2·98d.
Coals	...	...	...			2s. 1·56d.				
Less products	...					10·58				
Wages	...	...	...	...	...					4·69
Lime	...	...	...	...	...					0·38
Charges	...	...	...	...	...					4·14
Salaries and directors				...	...	...				7·54
Taxes	...	...	...	...	...					1·60
Wear and tear	...	...	...	...	...					4·92
Reserve for bad debts, &c.				...	...					3·28
Cost per 1000 feet				...	...					3s. 5·58

Capital employed, £17 for each ton of coal used per annum.

CLAY AND IRON RETORTS.

SIR,—There is much difference of opinion existing at present on the relative economy of clay and iron retorts; and the difficulty in the way of arriving at a just knowledge of their respective merits is greatly increased by the partial and prejudiced statements of those who have become enamoured of one or the other. The fact of each doing well in particular places would lead the impartial observer to the idea that local circumstances, such as the value of iron, fuel, and gas, may have considerable influence in the adoption of either. This view, however, is seldom taken; for we frequently meet engineers who are wholly absorbed in one system or the other, each relying upon experiments of the most opposite and contradictory character.

The difficulty in examining this subject is hence great in proportion to the mass of conflicting evidence, and, if we should fail in clearly demonstrating which is the most beneficial, the arrangement of matter to be debated will probably assist an abler pen in making a clearer demonstration.

It is asserted, on the one side, that the original cost of clay retorts is less, and their durability greater, than iron; that they evolve more gas of a better quality, are less subject to carbonaceous deposit, and require the same amount of fuel (some, indeed, assert less, but this is scarcely credible).

On the other side, it is urged that clay is porous (more especially when new), and allows much of the gas made to pass by insensible perspiration into the flues; that clay retorts are unmanageable and crack when their temperature is reduced; that carbonaceous deposit is greater in them than iron; that, although more gas can be made from them under favourable circumstances, the average amount per ton is less; that, even when apparently greater, it is an attenuated gas due to high heats and carbon deposited; that clay, being a bad conductor of heat, requires more fuel—which disadvantages more than compensate for the greater price and more rapid decay of iron.

These are the assertions made, and they are sufficiently numerous and conflicting. I will diminish their number before entering upon the argument; for I believe that carbonaceous deposit is not induced by the material of which retorts are made, but principally by the temperature at which carbonization is carried on and the surface exposed, and *partially* by the density of the gas caused by additional pressure.

The material can have little effect after the first film is deposited, as it will be then clearly carbon attracting carbon in both cases.

There is certainly, to all appearance, less deposit in clay for the first few months; but it is highly probable that, during this time, the pores of the clay are becoming saturated, for we know that this saturation may be traced through the whole thickness when the retort is removed from the furnace, and a sectional fracture made in it. Iron, on the contrary, being much less porous, receives the deposit from the first, but (being generally worked at a lower heat) to a less extent.

While upon this subject I may remark that the effect of pressure in producing deposit is much over-estimated. Gas, during its manufacture, has a density due to the pressure acting upon it, that is, thirty inches of mercury due to the atmosphere, and say one inch additional from gasholder, hydraulic dip, &c. Now, if by mechanical

means, this one inch extra is removed, the density of the gas will only be diminished by about three per cent., which is too small a difference to have any perceptible effect. Indeed the alteration of the barometric column from thirty to twenty-nine inches would have an equal influence. It has been asserted by Mr. Grafton and others, that reducing the pressure to level gauges will materially diminish the deposit, or altogether arrest it. This, I think, is an ill-founded assertion, and totally opposite to experiment, as well as to what might be expected from an investigation of the effects of a slightly reduced density. Having thrown aside the deposit of carbon as irrelevant, the question will assume a simple form. Thus:—

The cost of maintaining clay against iron;
The gas produced from each per ton, the volume being multiplied into specific gravity; and
The fuel required by each.

I will first investigate the cost of maintaining each. And here it is evident that the advantage is on the side of clay; the only difficulty will be in determining the true amount. If we take the circulars of the clay retort makers, they certainly overrate the saving.

A statement has been published giving the experience with clay and iron retorts at the Dunfermline Gasworks. From this the average cost of iron is £161. 5s. 6d. upon 18 retorts, making 5,104,000 cubic feet per annum; and for 10 clay retorts, making 7,500,000, £19. 5s. 7d.

If allowance be made for the extra quantity of gas made in the latter, this sum would be reduced to £13. 2s. 4d., making the difference between iron and clay for 5,104,000 per annum to be £148. 3s. 2d., a difference in the cost of gas of 7d. per 1000 feet. Now, although it is hardly courteous to question the truth of a statement of this kind when attested by the manager where the events take place, still we cannot help noticing that the statement bears internal evidence of partiality, or carelessness in the use of iron. £161. 5s. 6d. is more than sufficient to have reset the whole of the retorts used; and, if such were the case, then each, while it lasted, only produced 283,000 cubic feet of gas, about equal to the produce of 100 good working days. To speak of burning out retorts at this rate is a gratuitous advertisement of the want of skill in the manager.

The tear and wear of the retorts would be, by this statement,—iron 7½d., clay ½d., per 1000 feet,—the former much too high, and the latter too low, being, in fact, one-fourth of the low estimate which Mr. Croll gives as his cost by the combination of clay and iron.

Many other statements might be added to this, in which clay retorts are spoken of as perfect salamanders, showing no sign of decay after three or four years' use.

I will be content with the foregoing sample, and pass on to a statement which I have received from a gentleman quite disinterested in the success of either plan, and upon whose impartiality I have the greatest reliance.

The works alluded to had, during the three years ending 1847, 54 iron retorts, 25 of which were burnt out annually, at an expense of £241. 14s. 7d.; the gas manufactured being about 17,000,000. That is at the rate of 3·41d., or nearly 3½d., per 1000 feet; this, however, is without furnace-doors and fire-bars. Since this time the conductors of the works have arranged with a clay retort maker, who is well acquainted with his business, as well as a good gas engineer, to supply and keep in repair clay retorts sufficient to make the same quantity of gas, still excepting furnace-doors and bars, for a series of years, at £160 per annum, or at 2·26d. per 1060 feet. The price by this statement will be in cost,

Iron	3·41d.
Clay	2·26d.
Difference in favour of clay,	1·15d.

I will, in your next number, consider the quantities of gas yielded by each.

ALUMINIUM FERRUM.

HYDROCARBON GAS.

SIR,—Descrying in your first number of the JOURNAL OF GAS LIGHTING a notice upon this important subject, perhaps you will not consider it out of place if I embody for insertion in your next journal the leading particulars of my experience upon this description of illuminative gas in France and England, conjoined with a few critical remarks thereon.

You are doubtless aware that numerous patents have been taken, and still more numerous trials made, to economize tar and convert it into gas, as well as to obtain an illuminative gas from the decomposition of water upon red-hot coke, charcoal, &c., with very variable success (before the epoch of this particular patent), amongst which may be enumerated those of Rutter, Jobard, Pelletan, Seguin, Down, Radley, Constable, and others, and, although the general similarity is great, I yet am particularly impressed with the singular coincident relations existing between the specified methods of Radley and White, the former of whom dates his patent May, 1845; the latter October, 1847.

Permit me, in the first place, to recount my operative experience in the processes of Jobard and Seguin in Paris together, my interviews and correspondence with Mr. S. White in 1848, indulging in a little digression upon the chemistry of the subject, and a few remarks upon Radley's specification. From 1845 to 1847 I was engaged in Paris in the manufacture of gas from water and tar *(Goudron de Houille)*, according to a modified process partaking of those of Jobard, Pelletan, Seguin, and, as I afterwards discovered, of that of Radley of London.

As you state that "White is erecting works in Ireland to test the feasibility of *his* plan," yourself and readers may not deem as an anticipation of the *dénouement* the publication of two years' experience of the practice in question, not exactly as Mr. White prescribes, but somewhat better and more in accordance with the laws of chemistry and physics.

Now, although 9lbs. of water actually contain 95 cubic feet of oxygen and 190 cubic feet of pure hydrogen gases, yet we cannot, for some reason or other, obtain these quantities in actual practice, by about 5 feet of oxygen and 10 feet of hydrogen, as 9lbs. of water yield 90 feet of oxygen, and 180 feet of hydrogen in actual practice by decomposition upon red-hot coke or iron, and a proportionate volume of this oxygen is converted into carbonic acid and carbonic oxide, the former prevailing over the latter according to temperature and other circumstances; and the hydrogen is in like manner combined with carbon where coke or cast iron is used, and the real quantities of each, as ordinarily found, are 45 cubic feet of carbonic oxide; 22·5 cubic feet of carbonic acid gas, 135 cubic feet of hydrogen, and 22·5 cubic feet of carburet of hydrogen, making 225 cubic feet of mixed gases, which, when the carbonic acid has been separated, becomes 200 feet of gases from 9lbs. of water; but, when this compound gas, or, as it may strictly be termed, "*impure hydrogen*," is further submitted to the red-hot vapours of coal tar, becomes 112·5 feet of carburet of hydrogen, making, with that previously carbonated, 135 cubic feet *in toto*, and with 45 cubic feet of protoxide of carbon makes 180 cubic feet of excellent gas from 9lbs. of water in vapour, and 8lbs. of coal tar, or 10lbs. of common rosin. From these data we obtain that 112lbs. of coal tar, plus 125lbs or 2 cubic feet of water, will yield, by mutual decomposition, 3240 cubic feet of pure coal gas, contaminated with a small portion of a peculiar gaseous body, which evolves ammonia at the crest of the burner. The cost of this gas in Paris was about 1s. 4d. per 1000 feet, the principal expense being fuel. Hence it will be seen that, as 10 gallons of coal tar, worth 10d., with the requisite water, will yield 3240 feet of gas, it follows that every gas establishment, making 10 gallons of tar per ton of coal carbonized, might, at an expense of 1s. 4d. per 1000, augment the 9200 cubic feet of coal gas now generally obtained to 12,440 cubic feet. But, when I visited Mr. White in 1848, I gathered from him that he only obtained 1000 feet of gas from 100lbs. of tar and 50lbs. of water, which discrepancy of result not only evidences a great inferiority of process as compared with the modification given above, but a great increase of the expense of production, equivalent, in my notion, to an extra shilling per 1000 feet. Many of his details are childish, such as "chains hung in festoons" to decompose water and tar upon; these being worth at least £35 per ton, when scrap iron, equally serviceable, could be had abundantly at £6, ready for use. As Mr. White claims quicklime to assist in decomposing water and tar, I asked him to explain the rationale of its use, when he coolly said that he was not aware of any utility in lime; upon which I observed that he appeared to have copied Radley's claim without knowing why. Upon the whole, I believe that a modification of Mr. Radley's patent could not fail of success as an useful adjunct to the works making coal tar.

As I have not the pleasure of Mr. Radley's acquaintance, and know not how to get at him, will you permit this addendum, in order that, should that gentleman see it, he may exercise his option as to whether he will place himself in correspondence with me upon this important and very interesting subject.

Mottram, Cheshire, March 16, 1849. WM. GRAHAM.

Register of New Patents.

FRANK CLARKE HILLS, Deptford, Kent, manufacturing chemist, for "*improvements in treating certain salts and gases or vapours.*" Patent dated October 9, 1848.

1. The first of these improvements consists in certain processes and apparatuses for increasing the illuminating power of gas, and obtaining a greater quantity of gas from a given quantity of coal.

The tar or pitch resulting from the manufacture of ordinary coal gas is deprived of its naphtha, and reduced, by distillation, to a hard and solid state when cold. After this it is melted and mixed with breeze, small coke, or coal, when it may be, to produce gas, distilled in a retort by itself, or mixed with coal, or thrown in on the top of a charge. Or the thick tar may be run, in a gentle stream, into a vertical retort, kept red hot, and partially filled with coke, whereby gas will be generated, and more coke formed, which must be removed when the retort becomes too full. The gas passes over the heated surfaces of the coke, and escapes from the bottom of the retort. The retorts employed (by preference) for this purpose are "reciprocating ones," that is to say, retorts in which the gas of the one is made to pass into the coke of the other. The vapour of naphtha, which is distilled from the tar, may either be condensed by being caused to pass through a refrigerator, or converted into an illuminating gas, by being made to flow into a red-hot vertical retort, partially filled with coke. The illuminating quality of the gas may be much improved by

being mixed with the waste gas of wood which is evolved in the distillation of pyroligneous acid.

2. In order to obtain, in a concentrated state, volatile solutions of ammonia, Mr. Hills proposes to employ a tower, ten times greater in height than in diameter, and fitted inside with iron trays placed about two feet apart. The spaces between the trays are nearly filled with coke, broken tiles, and other such like suitable materials. And the solution is caused to flow into the top of the tower, and through these various substances, while a current of steam or heated air is drawn in at bottom by means of a chimney or other suitable mechanical means, so that it may come into contact with the solution, percolating the media, and thereby vaporize the ammonia, and allow the water to flow out at bottom. The ammoniacal vapour is next led through similar media, which surrounds a coil of pipes, placed in a second tower, to conduct the solution to the first. By this arrangement the ammoniacal vapour will communicate portions of its heat to the solution, and consequently lose the greater part of whatever watery particles it may retain after the first operation.

3. To concentrate saline solutions and sulphuric acid a process is adopted very similar to the preceding, with these modifications, however, that the towers are lined with some substance not affected by the acid, and the media employed possess also the same acid-resisting property.

4. Liquids are made to absorb gases which have an affinity for, or are soluble in, them, by being caused to flow into the top of a tower like the one before described; but having sawdust, tan, or pumice-stone, as the percolating media, and the holes of the tray sufficiently small to prevent their falling through, while the gas is drawn in at bottom, and penetrates the sawdust, and combines with the liquid with which it is saturated. Or the gas may be conducted into a horizontal cylinder, half filled with the liquid, and furnished with a horizontal spindle, surrounded with brushwood, furze, or other similar substances. Rotary motion is communicated to the spindle, and the brushwood, dipping half into the water, carries up some of the particles, which, falling from point to point, become saturated with the gas. When the liquid is sufficiently impregnated with the gas it is drawn off, and a fresh supply introduced.

5. To expel the noxious gases or vapours from vessels in which ammoniacal liquids have been saturated, as also from gas-purifying materials, and the vessels containing them, currents of steam, or atmospheric air, either heated or not, are passed through them. The draught is created by a chimney or other exhausting apparatus, and the steam or air is admitted at top of the vessel, and drawn down through the material to a chimney. In case the vessel or purifying material contains a gas which it may be desirable to preserve, a condenser may be placed between it and the chimney. By this process the lime used in gasworks may be so purified as to be fit for use again. And the formation of explosive compounds by these gases is prevented by causing a sufficient quantity of steam or atmospheric air to mingle with them in the pipe leading to the chimney.

6. To distribute liquids equally in stills or absorbing vessels, the following arrangement is proposed:—A number of pipes, set at a convenient distance apart, and having small holes drilled in them, are employed to conduct the liquid. A tumbler, divided by a central plate into two triangular or hopper-like compartments, is so suspended by pivots over a box, and underneath the supply-trap, that when filled it shall reverse its position, empty its contents, and bring the opposite end uppermost to be filled in its turn. The object of this arrangement is to convert the continuous flow into intermittent supplies, each sufficient to fill the box. Or, instead of the preceding apparatus, a hollow central vertical spindle, having radial hollow arms perforated on the under side, may be employed. Rotary motion is communicated to the spindle, and the liquid flowing through it to the radial arms is equally delivered through the perforation to the still, &c.

7. In order to deprive coal gas of its naphthaline, the patentee causes it to pass through a solution of caustic potash and lime, or caustic soda and lime, which is contained in a vessel constructed and arranged similarly to a wet gas purifier.

Claims.—1. Mixing thick tar or pitch, deprived of its naphtha, with breeze, small coke, or coal, to be used in conjunction with ordinary coal in making gas.

2. Running thick tar or pitch into red-hot retorts, partly filled with coke or other suitable substance, so as to form heated surfaces over which the generated gas is to pass.

3. Passing the vapour of naphtha through red-hot retorts, partly filled with coke, so as to form an illuminating gas.

4. Mixing the waste gas from wood (obtained in the manufacture of pyroligneous acid) with the gas obtained from the rich hydrocarbons or from coal.

5. Distilling the volatile solutions of ammonia, whether pure or mixed with other gases, by running them through greatly divided media, contained in a suitable chamber or tower, while a current of steam or heated air is brought into direct contact with them by being caused to pass through the media in an opposite direction.

6. Concentrating saline solutions, by causing them to percolate through suitable media, over or through which heated air, or the gaseous products of combustion, are made to pass in an opposite direction.

7. Driving off the more aqueous vapours of sulphuric acid by causing heated air, or the gaseous products of combustion, to pass through a tower, or column containing suitable media, through which the sulphuric acid is made to percolate.

8. Effecting the absorption of gases by liquids for which they have an affinity, as before described.

9. Extracting or clearing the noxious or other vapours from ammoniacal saturators, gas purifiers, and other absorbing vessels, and the purifying materials employed in them, by passing a current of steam or atmospheric air, whether at ordinary or high temperatures, to pass through them to the furnace or chimney.

10. Preventing the gases drawn from such vessels or substances from forming explosive compounds, by mixing with them a sufficient quantity of steam, atmospheric air, carbonic acid, or other suitable gas, to render them inexplosive.

11. Distributing liquids equally into stills or other absorbing vessels, by means of a tumbler or revolving radial arms.

12. Freeing coal gas from its naphthaline, by passing it through solutions of caustic potash and lime, or caustic soda and lime.

Robert Angus Smith, Manchester, for "*improvements in the application and preparation of coal tar.*" Patent dated October 19, 1848.

These improvements consist in the preparation and application of coal tar to coating the interior surfaces of water-pipes. The coal tar is first reduced, by distillation or otherwise, to a thick, pitch-like mass, and placed in an open vessel, of sufficient depth, to contain the pipes to be operated on, where it is heated to 300° Fahr., or to a temperature at which the coal tar becomes fluid. The interior surfaces of the iron pipes are freed from oxide and covered with linseed oil, to facilitate the adhesion of the coal tar, in which they are immersed for about an hour, after having been previously heated to 300° Fahr. When the pipes are lifted out linseed oil is poured into them, which removes any excess of coal tar, and serves, at the same time, to keep the contents of the vessel fluid. Or the pipes may be placed cold, after being cleansed from the oxide, in the melted coal tar, and kept there until they are of the same temperature, which the patentee states he has generally found to take an hour and a half.

Claim.—Coating the interior of water-pipes with coal tar by the aid of heat.

Note by the Editor.—Mr. Radley draws our attention to the fact that the process above patented is embraced in his patent of 1845; the eleventh claim of which runs thus:—"I claim the method of varnishing, filling, or otherwise grouting the pores of cast iron, earthenware, and other descriptions of pipes and vessels destined to convey gas, air, water, or other fluids, or to sustain partial vacuum, in order to prevent exosmosis and endosmosis." In describing the manner in which his process is to be applied, he says:—"The cast iron must have its internal surface covered over, and its exosmosic pores grouted with bitumen or asphalte resulting from the distillation of naphtha from coal tar, or any other similar resinous or bituminous substances, blended, or otherwise, with a suitable preparation of steanic or margaric acids, or both, according to circumstances."

George Arthur Biddle, of Ipswich, engineer, for "*improvements applicable to gas-burners.*" Patent dated Nov. 2, 1848.

The object of this invention is the equalizing of the light of gas-burners by means of a self-acting apparatus, so that under varying pressures of gas the light may be steady. The apparatus consists of an arrangement similar in principle to that of the gridiron or compensation pendulum of a clock. It is composed of a steel rod fixed within a brass tube occupying a central position within the flame of an argand burder. The greater or less heat produced by the increase or diminution of the flame causes the steel rod to act by expansion or contraction upon a lever connected with a valve attached to the supply pipe, which regulates the supply of gas accordingly. Claims—The arrangements whereby the expansion of the combined pieces of metal are made efficacious in regulating the supply of gas to the burner, and the employment of a valve for stopping off the gas instead of a stop-cock. And the valve, in so far as its upward movement is calculated to nearly stop off the flow of gas. And also a long ground bearing for the valve spindle to be used instead of a stuffing-box.

Miscellaneous News.

INSTITUTION OF CIVIL ENGINEERS.

April 17.—A paper was read "On an Application of Certain Liquid Hydrocarbons to Artificial Illumination," by Mr. C. B. Mansfield, B.A. The paper first noticed that liquid hydrocarbons had been comparatively little used for the production of artificial light; and that, in the instances in which they had been applied, their liquidity, and not their evaporability, had been turned to account. In the use of the common volatile oils the excess of carbon in their composition was the great difficulty; but when that was surmounted, that excess became an actual benefit. There were two methods of rendering this carbon efficient as "light fuel," when advantage was taken of the volatility of the substances; one was, to cause the vapour, as it escaped from a jet, to mix rapidly with the air; the other, to mix the vapour, before combustion, with other gaseous matters containing less carbon. The adoption of the first of these was instanced in Holliday's recently patented naphtha lamp. The second consisted of the new arrangements described in the paper. This principle was carried into practice in two ways. The first (which was illustrated by a lamp that was burning on the table) was effected by mixing the hydrocarbons with some other inflammable spirits containing very little carbon. The mixture was described as being made in certain definite proportions, which ensured a perfectly white light, and from which any deviation would result in a flame of inferior quality,—pale, if the hydrocarbon were deficient; smoky, if the mixture were poor in spirit. The ingredients most accessible in this country were stated to be, wood-spirit, and a volatile oil from coal naphtha, in the proportions of two-thirds of the former to one-third of the latter. Alcohol and oil of turpentine had been similarly used on the Continent, though the former was too dear for use in England.

The other adaptation of the same principle, and that which it was the chief object of the paper to describe, was the dilution of the hydrocarbon vapours with permanent gases of inferior or even of no illuminating powers. That application might be called the naphthalization of gas, or the gasization of naphtha, according as its main object was to enhance the services of the gas, or to utilize the liquid: the latter was the object of the new proposal described in the paper; the former had been already accomplished by preceding inventors. The first invention was that of Mr. Donovan in 1830, who proposed

to confer illuminating power on gases that were inflammable, but not luminiferous, by charging them with the vapour of hydrocarbons; but, from the want of a sufficiently volatile fluid, he was compelled to have a reservoir close to every burner. The next application was that of Mr. Lowe, who increased the light obtained from coal gas by passing it over surfaces of naphtha. Mr. Beale's air light was then noticed; its object was to use hydrocarbons for illumination by passing a current of air through vessels containing those liquids. There existed, however, the same obstacles to this plan as to that of Mr. Donovan, viz., the heat required to evaporate the only liquid hydrocarbons then accessible. The paper represented that at length the difficulty had been solved by the discovery of a liquid hydrocarbon, as volatile as spirits of wine, but containing sufficient carbon for the most perfect light, and obtainable in any quantity. This hydrocarbon was procured from coal tar, and was called "benzole." Its volatility was such as to enable it to naphthalize atmospheric air as effectually as ordinary naphtha did coal gas.

The system proposed by the author (which was illustrated in the room by a working apparatus) consisted in conducting a stream of almost any gas, or even of atmospheric air, through a reservoir charged with benzole, or some other equally volatile hydrocarbon, the gas or air so naphthalized being then conducted, like common coal gas, through pipes to the burners. It was stated that the system was applicable on any scale, from the dimensions of town gasworks to the compass of a table-lamp. In the apparatus exhibited, a small gasholder, filled by a pair of bellows, supplied common air through pipes. The gases formed by passing steam over red-hot coke would answer well for this purpose, and it would depend on local circumstances whether this mode of generating the current would be preferable to the expenditure of the mechanical force necessary for driving atmospheric air through the pipes. Pure oxygen charged with the vapour would explode on ignition; it was, therefore, suggested that this might prove a useful source of motive force. It was, however, stated to be difficult to form an explosive mixture of the vapour with common air. By decomposing water with the voltaic battery, naphthalizing the hydrogen with benzole, and burning it with the aid of the equivalently liberated oxygen, a simple light of intense power might be obtained. The system was shown to be a great simplification of the ordinary system of gas-lighting, as no retorts, refrigerators, purifiers, or meters, were required, and the products of combustion were as pure as those from the finest wax. It was expected that the elegance of the material, and the simplicity of the apparatus, would induce its introduction into buildings and apartments where coal gas was not now considered admissible.

The apparatus and conditions necessary for the success of the method were, a flow of cheap gas, or of air, driven through pipes by any known motive power, and a reservoir of the volatile spirit through which the main pipe must pass in some convenient part of its course, these pipes and reservoirs being protected from the cold. It was stated that, though the liquid did not require to be heated above the average temperature of the air, it was liable to become cooled by its own evaporation, so as to require an artificial supply of warmth. This was readily effected by causing a small jet of flame of the gas itself to play upon the reservoir, and, by a simple contrivance, called a "thermostat," by which the flame was shut off when necessary, the temperature could be made self-regulating, so as never to rise above or fall below a proper degree. The cooling due to the evaporation would, of course, be inversely proportionate to the quantity of liquid in the reservoir. If atmospheric air was used as the vehicle for the vapour, the jet holes in the burner, from which it escaped for combustion, must be slightly larger than those for coal gas. Some burners, contrived for the purpose of accurately adjusting the size of the orifice to the quantity of luminiferous matter escaping, were exhibited and described; they were made so that, by moving a part of the burner, any required quality of flame, from lightless blue to smoky, could be obtained, there being a medium point at which the most perfect brilliancy was arrived at. The burners would answer equally well for coal gas, though that material could not, even by them, be made to evolve so white and pure a light as that from benzole vapour. In conclusion, some data were given on which a calculation of price was founded.

It was stated that a gallon of benzole of the degree of purity requisite for the purpose would cost about 2s. 6d.; to this the expense of the air current and the interest of the original outlay on apparatus were to be added. This, the author presumed, would not raise the cost to more than 4s. for the consumption of a gallon of benzole. It was stated that 1 oz. of that liquid would give a light equal to four wax candles, of four to 1lb., for one hour; or one gallon for about 120 hours. It was inferred that a gallon of this material was equivalent to about 1000 cubic feet of coal gas. Finally, for comparison with coal gas at a distance from the mines, it was stated that, while to produce 1000 cubic feet of gas at least 200lbs. of coal must be transported, one gallon of benzole did not weigh more than 7 lbs.; this, in carriage, would give benzole an advantage of 28 to 1 over coal as a source of light.

In the discussion which ensued, high encomiums were passed upon the talent and patient labour exhibited by Mr. Mansfield in the investigation of this important subject, which promised to lead to most remarkable results, as an extension of gaslighting to positions where it had not before been considered applicable.

Electric Light.—The new ballet at her Majesty's Theatre has been identified with the electric light. The critiques of our daily contemporaries have made the public familiar with the subject of the piece. It may be interesting to the scientific portion of our readers to be furnished with some of the details behind the scenes, and we are in a position so far to oblige them. The battery is placed on the roof, constantly attended by two or three men; and it will be hardly credited that after all the expense of the numerous patents, for perfluent, percolating, syphon, and other batteries, the high compliment is paid to the Rev. Dr. Callan, the suggestor of the Maynooth battery, of giving that battery the preference. There are about seventy-five cells of the largest size; about four hundred yards of (say of No. 14) copper wire, insulated, are used as the conductors to the machine for regulating the carbon points. The lamp, or machine, appears to be the same, or of the same construction, as that heretofore used at Trafalgar-square. It is set in operation some time before the light is required, so as to preclude any delay in exhibiting it to the audience, and kept covered till called into requisition by the appropriate incident of the piece. It stands before an immense parabolic reflector, and throws a most intense glare of light on the principal *danseuse*. The duration may be from three to five minutes. After the ballet we understand a private display took place, the curtain was raised, and the house flooded with the electric rays, totally obscuring all other lights. Mr. Staite is the patentee selected by Mr. Lumley's patronage. The actual expense of this short exhibition, without including any profit to the patentee, is, we are told, £2 per night; no doubt the chemical products compensate for this outlay—otherwise, *le jeu ne vaut pas la chandelle*. We fear the economists will say, if five minutes cost £2, one hour will cost £24. The cost for such a purpose is not the consideration at present. A worse feature, however, is that Mr. Staite apparently abandons his patented batteries. We have been also informed that the directors of the Hungerford Suspension Bridge have placed at Mr. Staite's disposal one of the towers, where his light is to be very soon exhibited—a very appropriate place, we should say, if we may be excused the pun—as we have been kept so long in *suspense* as to its reappearance.

Rating of Railways.—The principle upon which gas-works, water-works, and railways are rated being identically the same, the following report will have some interest for our readers:—At Kilmainham sessions, before Mr. Kemmis, chairman, the judgment of the court was delivered in a case wherein the Dublin and Drogheda Railway Company were appellants, and the Guardians of the Poor of Balrothery Union, respondents.—His Worship, after an elaborate review of the principles established by the English courts in appeals by railway and other such companies against rating to the poor, and a full statement of the provisions of the Irish Poor-law Act, under which the rating appealed from in the case had been struck, proceeded to say that, after an attentive examination of the evidence on both sides, he had arrived at the conclusion, from admitted facts, or from preponderating right of tenancy, that the appellants had established a case for the entire reversal of the rate appealed from. Without discussing disputed items, he had come to this conclusion by making the following deductions from the gross receipts of the company for the past year, viz.:—

1. Current expenses of working the concern, including daily repairs	£20,550	0	0
2. Interest at 5 per cent. on capital invested in small stock, taking the stock not at its original, but at its present value of £64,920	3,246	0	0
3. Allowance at 12½ per cent., for reproduction of same stock at present value	8,115	0	0
4. Do. of 2½ per cent., for the reproduction of buildings, taking them at value for £40,000	1,000	0	0
5. Tenants' profits on the capital invested in moveable stock as above, at 15 per cent.	9,738	0	0
6. Allowances on estimate of Mr. Eckersly for reproducing rails, chains, and sleepers	4,100	0	0
7. Direction	500	0	0
8. Insurance	375	0	0
Total	£47,624	0	0

The amount compared with the gross income of the company for the past year, £44,786, showed an excess of allowances over income of £5838. There was, consequently, no ratable interest for poor-law purposes, and the rate appealed against should be annulled. Several other items, for which allowances had been claimed on behalf of the company, were omitted out of these deductions, and the question was, whether the company were or not entitled to be allowed them? But, the items allowed being sufficient to establish the appellants' case, it was unnecessary to discuss it.—The several rates appealed against were then reversed without costs.

Bedford Prison.—We alluded, in our last, to a contract having been entered into for the supply of gas to this establishment at 5s. per 1000 feet. The contractors immediately issued a notice to the public announcing the engagement they had entered into, and stating that "The erection of works for this purpose afforded them a favourable opportunity of supplying the town of Bedford with gas, of the best and purest quality, at the greatly reduced charge of 6s. per 1000 cubic feet. To enable them to carry the reduction into effect, the decided support of consumers is essential; and, before incurring the heavy expenses of laying down mains and services, they consider it an act of common prudence to ascertain how far that support will be afforded. With this view, their agent will do himself the pleasure of waiting upon parties consuming gas, with a view to enrol their names upon their list of consumers, and of whom all further information may be obtained." The commissioners, however, feeling satisfied with the conduct of the existing company, and believing that the present price of gas (7s. 6d., with a prospect of an early reduction) was fair and reasonable, have refused to allow the streets to be broken up for the introduction of another company: one of the commissioners very aptly remarking that "they should bear in mind that the rental of the Bedford Gas Company was only £1500 a year, so that this monstrous monopoly—this incubus, which pressed so heavily upon Bedford—only amounted to a sum which most of the tradesmen in the High-street would be ashamed to own as their annual income. Under these circumstances, was it worth while to split this sum into two?"

RAMSAY'S Garesfield Colliery,
NEWCASTLE-UPON-TYNE.

COKING COAL and COKE of the best quality; superior CANNEL COAL, and FIRE GOODS of all descriptions.

Analysis of Garesfield Coke, by Dr. Richardson, of Newcastle:—

Carbon	97·60.
Ashes	1·55.
Sulphur	0·85.

Products of Ramsay's Newcastle Cannel Coal, as ascertained by Drs. Leeson and Miller, and G. H. Palmer, Esq.:—

Gas per Ton of Coal, cubic feet ..	9·667.
Specific Gravity	0·731.
Illuminating Power	1·85 to 2·03.

ordinary Newcastle Coal Gas being 1.

Coke per Ton of Coal .. .. .. 13½ cwt.

Office, Broad Chare, Newcastle-upon-Tyne; and 46, Fenchurch-street, London.

THE MOST PERFECT DRY GAS METER.

N. DEFRIES, Engineer, Inventor and Patentee, 10, Hampstead-road, and 67, St. Martin's-lane, London, having, by the SALE of nearly 30,000 METERS, established, beyond all doubt and precedent, their unequalled character, begs to direct the attention of the Gas Companies, the Gas Fitters, and the Public, to the following particulars:—That nearly 30,000 are now in action; that the powerful Chartered Gas Company have more than 6000 alone in use; that he has recently constructed, upon the order of the above Company, a Meter for the New Houses of Parliament, calculated to pass 10,000 feet of gas per hour, and to supply 2000 burners, and which has been pronounced by all the daily and weekly journals and the first men of the day to be the most magnificent measuring machine ever constructed by human hands; that a Meter of almost equal dimensions was recently constructed by him, also upon the order of the Chartered Gas Company, for the Italian Opera-house, Covent-garden, calculated to pass 6000 feet of gas per hour, and to supply 1500 burners, and which works with only the loss of one-half a tenth pressure; that he has supplied many large Meters to Government Offices, Public Companies, Club-houses, Churches, Chapels, Theatres, &c., too numerous to mention; that two large Meters have been in action at the Thames Tunnel night and day for five years, being equal to forty years of ordinary use; and the registration, being recorded daily, offers the most incontestable proof that, on the score of precision and durability, they stand unequalled; that these Meters have been proclaimed by the first scientific gentlemen of the day to be the surest tests that could be made; and eight years' flattering experience has proved them to be wholly free from all the evils and annoyances attendant upon the water meter, of the truth of which the annexed testimonial bears striking evidence:—

"Woolwich Protective Consumers' Gas Company,
"Jan. 15, 1849.

"Sir,—I have great pleasure in giving my testimony to the excellence of the dry meter, and think there is no comparison between that and the water meter, as regards the value of the two instruments. Experience confirms this opinion. We have had several hundreds of yours in work for nearly five years with the utmost success. They are perfect in registration, have no undulation in the lights, are free from the action of frost, and, above all, require no attention when once fixed. I have taken down several that have been at work for the above time, and, on testing them, found they registered as correctly as when first made. I am confident I cannot say too much in praise of dry meters; and that all gas proprietors who furnish pure gas would find it to their interest to use them only.

"J. THOMAS, Superintendent Engineer.

"To Mr. Defries"

Experimental Glazed Meters may be seen in action at
Mr. Faraday's, Wardour-street, Soho.
— Warris, Wardour-street, Soho.
Messrs. Dean and Dray, Arthur-street, London-bridge.
Mr. Baker, Manor-house, King's-road, Chelsea.
Institution of Civil Engineers, 25, Great George-street.
Royal Polytechnic Institution, Regent-street.
The Bank of England,
Mr. Boccius, Patent Light Office, 14, Duke-st., Adelphi.

And at the following Gas Fitters and Lamp Manufacturers:—
Mr. Deville, 367, Strand.
Messrs. Debaufer and Son, Creed-lane, Ludgate-hill.
— Dowson, 69, Welbeck-street.
— Brocklehurst and Co., 177, High Holborn.
— Huxley and Herlot, 16, Castle-street, Long-acre.
Mr. Hodder, 9, Tottenham-court-road,
— Kitchen, 60, Crawford-street, Marylebone.
— Rickets, 5, Agar-street, and 14, Threadneedle-st.
— Slater, 23, Denmark-street, Soho.
— Baker, Manor-house, Chelsea.
— Shirley, 3, Back-road, Ratcliff-highway.
— Gardner, 453, Strand.
— Carter, 41, Exeter-street, Portland-market.
— Petitt and Son, 17, Brook-street, New-road.
— Verity, 31, King-street, Covent-garden.
— Rothwell, 20, Cleveland-street.
— Williams, 14, Sloane-square, Chelsea.
— May, 21, Berwick-street.
— Edgar, 71, Marylebone-lane.
— Pilkington, 26, Great Marylebone-street.
— Greening, 15, West-street, Seven-dials.
— Harris, Wardour-street, Soho.
— Edgar Parkes, Fleet-street.

In conclusion N. Defries begs to say, that he has been extensively patronized by all the London and by most of the Provincial Gas Companies; that any or all of them will on application testify to the correctness, durability, and value of his Meters; that these Meters have been successfully introduced to the Continent, to America, and many of the Colonies; that they have proved themselves to be unvarying, correct, and durable instruments, and may be obtained at a small expense per annum of all Gas Companies who supply Meters to their customers; that they combine safety and economy, as no water is used, and require no attention when once fixed.

Testimonials, Lists of Prices, and every information may be obtained at either Factory, 10, Hampstead-road, or 67, St. Martin's-lane.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

CROLL and GLOVER, Patent Dry Gas Meter Manufacturers, Suffolk-street, CLERKENWELL-GREEN, LONDON, beg respectfully to call attention to the following extracts from testimonials in favour of their Meters. The respectability of the parties will be esteemed by all acquainted with gas matters as affording the most indubitable evidence of the superiority of their Patent Dry Gas Meters, proving that gas companies and gas consumers may rely on them for a just and unvarying registration, durability, and the absence of all trouble arising from condensation of water in the fittings, and the impossibility of their being stopped by freezing in the coldest climates.

CROLL and GLOVER take this opportunity of remarking to Gas Companies that the apprehension so generally entertained by them, viz., that if Dry Meters were introduced into their districts their Stock of Water Meters would be thrown on their hands, while this has not happened even with those Gas Companies who have for years back purchased none but Dry Meters; this apprehension ought to lead Gas Companies to a speedy investigation into the merits of Dry Meters, so that they may not, year after year, be increasing their stock of Water Meters, which they themselves apprehend must one day be thrown out of use.

CROLL and GLOVER humbly think that the following extracts prove that the merits of their Meter are entitled to prompt attention of Gas Companies.

Almost all the testimonials bear the date of November, 1848.

EXTRACTS.

"The Chartered Gas Company have purchased and fixed up above 2,000."—GEORGE LOWE, *Civil Engineer, F.R.S., &c., Consulting Engineer to the Chartered Gas Light and Coke Company, London.*

"We have in this district from seven to eight hundred, and are daily fixing more."—F. I. EVANS, *Superintendent at Chartered Gas Light and Coke Company's Station, Brick-lane.*

"I invariably found the flames perfectly steady, and the gas accurately measured."—A. H. STILL, *Superintendent at Chartered Gas Light and Coke Company's Station, St. Luke's.*

"I beg to state that out of 800 Meters of the square form, and anti-corrosive metal, I find only twenty have been entered in our return-book, chiefly for broken index-glasses. The company are continuing to purchase and fix up your Meters in considerable quantities."—WILLIAM MONRO, *General Superintendent and Engineer of the Phœnix Gas Light and Coke Company, London.*

"I have much pleasure in stating that the Meters we have received with your last improvements have given great satisfaction."—JOHN AIRD, *Superintendent of the Phœnix Gas Light and Coke Company's Station, Greenwich.*

"I have had some of them in use for nearly four years. In certain situations exposed to the influence of the climate I have found them to be the only description fit for use, as well as in confined and overheated situations, where the water in the Water Meters is acted upon by evaporation."—ROBERT LAING, *Secretary and Superintendent of the Independent Gas Light and Coke Company, London.*

"Having had, in all, up to the present time under my inspection 609 Meters of your manufacture, a very good opportunity has thus been afforded me of judging of their merits. The result of my observation in respect of registration and steadiness of light is, that the Meters have given perfect satisfaction."—D. METHVEN, *Engineer and Superintendent to the Commercial Gas Light and Coke Company, London.*

"The advantages which I have found attending the use of your Dry Gas Meters, in preference to the Wet Meters, are so important, that nothing would induce me to return to the use of the latter. As Station Meters yours have the additional advantage, that there is no water-line to attend to, or to be subject to neglect."—CHARLES DIXON, *Engineer of the Chichester Gas Light and Coke Company.*

"I have also had sufficient opportunity of knowing that they are not affected by the most severe frost, nor where one of them was fixed did I ever know of condensation taking place in the inside gas fittings of any premises."—SAMUEL PONTIFEX, *Manager, Winchester Gas Light and Coke Company.*

"We are now using your Meters solely."—CHARLES PURVES, *Manager, Gas Works, Gosport.*

"They are a substantial and good article, of superior workmanship and material; they do their work exceedingly well and, after being once fixed, they occasion no further trouble. I assert that they do not alter in their measurement, as does the Water Meter."—J. THOMAS, *Manager, Consumers' Protective Gas Light Company, Woolwich.*

"Previous to using them I held theoretical objections, which I can now say have been removed, and their superiority as an instrument of unvarying measuring capacity has been fully established."—EDWARD H. THORMAN, *Superintendent of the West Ham Gas Company.*

"I have delayed giving my opinion of your Meters until I had had another winter's experience; and, notwithstanding some of them were placed in the open air, not one became fixed. We have had a short winter, but the frost is very severe."—P. T. W. de TIMMERMAN, *Director of the City of Leyden Gas Works.* January 26, 1849.

Station Meters, Station Governors, Pressure Registers, Experimental Meters, and Specific Gravity Apparatus.

CANNEL COAL.

JOHN HENDERSON and CO. respectfully invite the attention of Managers of Gas-works to the annexed Report by Professor Fyfe upon their PARROT or CANNEL COAL, which continues to be shipped at Burntisland to any extent. Price 10s. per ton, f. o. b.

Apply to Messrs. R. W. KENNARD and Co., 67, Upper Thames-street, London; or to JAMES CONNEL, Shipping Agent, Burntisland.

Lochgelly Coal and Iron Works, by Burntisland, March, 1849.

REPORT ON THE VALUE OF LOCHGELLY PARROT COAL FOR THE MANUFACTURE OF GAS.

In the trials made with this Coal 14 lbs. of coal were carbonized. The quantity of gas given off was estimated by meter; the illuminating power of the gas was ascertained by the chlorine test, the durability by meter—consuming the gas with a single jet of 1·33 of an inch diameter, and with a 5-inch flame. The specific gravity was taken in the usual way.

The following are the results, being the average of several trials:—

Cubic feet of gas	9123· per ton of coals.
Illuminating power of gas ...	14·5 candles.
Durability	65·30 minutes.
Specific gravity of gas	567·

The Lochgelly Coal may be considered as a fair average quality of Parrot Coal; for, though it is beneath the Lesmahago Coal, not only as regards the quantity of gas afforded, but also as to the illuminating power and durability of the gas, yet it is equal to the average quality of the Parrot Coal of the Lothians and of Fifeshire.

It is much more valuable than the English Caking Coal and English Parrot Coal now in general use, in regard to their relative value for the amount of light afforded by the combustion of their gases, as the following table will show:—

COALS.	Cubic Feet of Gas from Ton of Coal.	Illuminating Power of Gas by Chlorine Test.	Durability of Gas with Jet of 1·33 of an Inch. Min.	Sec.	Comparative Value of the Coals according to the Light afforded by the Consumpt of their Gases.	
English Caking Coal	8000	4·33	40	24	1·	—
English Parrot ditto	9500	7·6	44	0	...	1·
Lochgelly ditto	9123	14·5	65	30	6·18	2·71

Accordingly, the Lochgelly Coal is, on an average, more than six times the value of English Caking Coal, and more than twice and a half as valuable as the average of English Parrot Coal, for affording light by the combustion of their gases.

A ton of Lochgelly Coal leaves 1200 lbs. of coke.

In the above estimate the value of the ammoniacal liquor, tar, &c., is not taken into account.

A. FYFE, Professor of Chemistry,
Feb. 28, 1849. King's College University, Aberdeen.

BRYMBRO Iron Works, Foundry, and COLLIERY, near WREXHAM, NORTH WALES. Shipping Ports:—Birkenhead, and Saltney, near Chester, on the river Dee.

Report of Experiments made at the Wrexham Gas Works on the 3rd, 4th, and 5th, and at the Chester Gas Works on the 6th and 7th, of August, 1848, upon the Gas Coals raised at the Brymbo Colliery, by Mr. A. WRIGHT, Gas Engineer, London.

At one work Fire-clay Retorts were used at a high temperature; at the other Iron Retorts at a moderate temperature; the results are, therefore, given separately, Clay and Iron being given as synonymous with high and moderate heats.

TWO YARD COAL.

CLAY RETORTS, 2 cwt. charge. 5½ hours.

Per Ton:
Gas Cubic Feet 8880.
Sp. Gr. first of Charge ·596 } Mean Sp. Gr. 463. 5 feet per hour, equal to 15 candles.
middle „ ·462 }
last „ ·300 }
Gas by Weight 294·94 lbs.
Tar 70 „
Coke 12 cwt. 22 lbs.

The Coke of very superior quality.

POWELL COAL.

CLAY RETORTS, 2 cwt. charge. 5 hours.

Per Ton:
Gas Cubic Feet 10165.
Sp. Gr. first of Charge ·586 } Mean Sp. Gr. 459. 5 feet per hour, equal to 14·88 candles.
middle „ ·456 }
last „ ·428 }
Gas by Weight 337·8 lbs.
Tar 70 „
Coke 11 cwt. 56 lbs.

POWELL COAL.

IRON RETORTS, 1½ cwt. charge. 5 hours.

Per Ton:
Gas Cubic Feet 8250.
Sp. Gr. first of Charge ·560 } Mean Sp. Gr. 470, equal to 15·3 candles, at 5 feet per hour.
middle „ ·465 }
last „ ·300 }
Gas by Weight 295·6 lbs.
Tar 105·0 „
Coke 11 cwt. 56 lbs.

This Coal yields Gas very easily, of a good quality, and at a moderate heat. The Coke is also, though small, very good. It is therefore well fitted for those who use Iron Retorts and require a superior Gas.

London: Printed by THOMAS GREAVES BARLOW, of 32, Bucklersbury, parish of St. Stephen, Walbrook (at the office of Palmer and Clayton, 10, Crane-court, Fleet-street); and published by him at the Office, No. 21, Paternoster-row, in the parish of St. Faith, all in the City of London.—Thursday, May 10, 1849.